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Checking Mountain Soil Moisture Under the Snow, an important factor in snowmelt runoff.

Federal-State Cooperative
Snow Surveys and Water Supply Forecasts
for

ARIZONA

SOIL CONSERVATION SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

Data included in this report were obtained by the agency named above in cooperation with the Federal, State and local organizations listed on the last page of this report.

AS OF ____

MAR. 15, 1956

UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

TO RECIPIENTS OF COOPERATIVE SNOW SURVEY AND WATER SUPPLY FORECAST REPORTS:

Snow surveys in the West are conducted each year at more than 1200 snow courses. Basin and Province or State snow survey reports summarizing the results of the measurements and forecasts of seasonal runoff and water supply are issued by the Soil Conservation Service, U. S. Department of Agriculture and some of its cooperators; the Water Rights Branch of the British Columbia Department of Lands and Forests; and the California Division of Water Resources.

Copies of the various federal-state cooperative snow survey reports listed below may be secured by writing to:

Colorado, Rio Grande, Issued monthly February through May by SCS and

Head, Water Supply Forecasting Section Soil Conservation Service 209 S. W. 5th Avenue Portland 4, Oregon

BASIN REPORTS:

ST.

	and Platte-Arkansas River Basins	Colorado Experiment Station, Fort Collins, Colorado.*
	Columbia River Basin	Issued monthly January through May by Soil Conservation Service, Boise, Idaho.*
	Upper Missouri River Basin	Issued monthly February through May by SCS and Montana Agricultural Experiment Station, Bozeman, Montana.*
		Issued April 1 by Soil Conservation Service and Cooperators, Portland, Oregon.
٦,	ATE REPORTS:	
	Arizona	Issued semi-monthly January 15 through April 1 by SCS and Salt River Valley Water Users Association, Phoenix Arizona.*
	Nevada	Issued monthly February through April by SCS and Nevada State Engineer, Reno, Nevada.*
	Oregon	Issued monthly January through May by SCS, Portland, Oregon, and Oregon Agricultural Experiment Station.*
	Utah	Issued monthly January through May by SCS, Salt Lake City, Utah, and State Engineer of Utah and Utah Agricultural Experiment Station.*
	Washington	Issued monthly February through May by SCS, Spokane, Washington, and State Department of Conservation and Development.*
	Wyoming	Issued monthly February through May by SCS, Casper, Wyoming, and State Engineer of Wyoming.*
		*Special reports are issued as needed.

The British Columbia reports are issued February 1 through June 1 and may be secured from Comptroller, Water Rights Branch, Department of Lands and Forests, Parliament Buildings, Victoria, B.C.

The California reports are issued monthly February 1 through May 1 and may be secured from Division of Water Resources, California Department of Public Works, Sacramento, California.

The annual water supply forecasts of the Weather Bureau are available in monthly bulletins published from January through May. These bulletins entitled, "Water Supply Forecasts for the Western United States" may be obtained from River Forecast Center, Weather Bureau, 712 Federal Office Building, Kansas City 6, Missouri.

COOPERATIVE SNOW SURVEYS and WATER SUPPLY FORECASTS

for

ARIZONA

(Salt, Verde, Gila and part of Lower Colorado River Basin)

Issued

March 15, 1956

Report Prepared

by

W. E. Anderson, Snow Survey Supervisor Soil Conservation Service 39 North Sixth Avenue Phoenix, Arizona

Issued by

Salt River Valley Water Users! Association

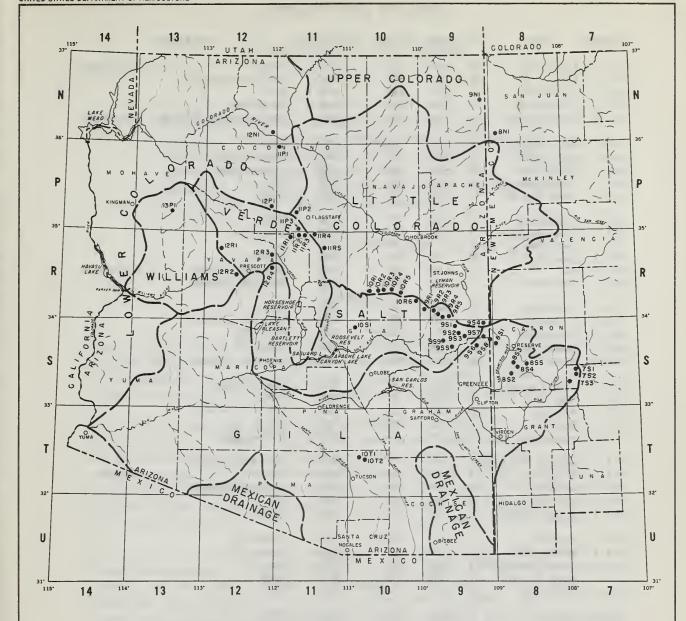
and

Soil Conservation Service

Robert V. Boyle State Conservationist

Victor I. Corbell President Soil Conservation Service Salt River Valley Water Users! Assn.

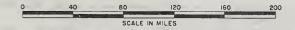
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LEGEND ORAINAGE BASIN BOUNOARY 13U2 • SNOW COURSE

ARIZONA COOPERATIVE SNOW SURVEYS

SNOW COURSES AND DRAINAGE BASINS
JANUARY 1956



INDEX TO SNOW COURSES

NUMBER	* NAME	SEC	TWP	RGE** E	LEVATION	RIVER BASIN	
11-P-3 9-S-1 10-T-1 9-S-6 9-S-3	Antelope Park Baldy (p) Bear Wallow Beaver Head Big Lake Knoll	29 28 6 13 2	19N 7N 12S 4N 5N	8E 27E 16E 30E 28E	7300 9000 8100 8000 8800	Verde Salt-Little Colorado Gila Salt-Frisco Salt-Frisco-Little Colorado	
7-S -3 12-N-1 12-R -1 10-R -3 11-R -2	Black Canyon Bright Angel Camp Wood Canyon Creek (s) Casner Park (s)	8 34 3 18 19	135 33N 16N 11N 18N	11W*** 3E 6W 15E 8E	6790 8400 5700 7500 6950	Gila Lower Colorado Williams–Verde Salt Verde	,
12-P-1 8-S-3 9-S-9 9-S-7 10-R-2 10-R-6	Chalender (s) Corner Mountain Corn Creek (p) La Coronado Trail Elk Forest Dale (s)	27 7 1.33°4 26 31 2	22N 10S 5'N. Lon 5N 11N 9N	3E 17W*** g.109 ⁰ 45'W 30E 14E 21E	7100 8850 .§ 7730 8000 7600 6000	Verde Gila-Frisco Salt Salt-Frisco Salt-Little Colorado Salt-Little Colorado	Discontinued
11-P-2 9-R-5 8-S-1 12-R-4 10-R-5	Fort Valley Ft. Apache Frisco Divide Gaddes Canyon Gentry	22 18 31 11 36	22N 7N 6S 15N 11N	6E 27E 20W*** 2E 15E	7350 9160 8000 7600 7600	Verde # Salt-Little Colorado Frisco-Gila Verde # Salt-Little Colorado	
11-P-1 11-R-5 10-R-4 7-S-2 12-R-2	Grand Canyon Happy Jack Heber (p) Inman Iron Springs	21 30 28 6 22	30N 17N 11N 11S 14N	4E 9E 15E 10W***	7500 7630 7600 7800 6200	Lower Colorado Verde Salt-Little Colorado Gila Williams-Verde	
9-S-2 9-R-4 9-R-2 9-R-1 12-R-3	Maverick Fork (s)(p McKay Peak McNary (s) Milk Ranch Mingus Mountain	13 14 28 3	6N 7N 8N 8N 15N	27E 24E 23E 23E 2E	9050 8250 7200 7000 7100	Salt-Little Colorado Salt Salt-Little Colorado Salt Verde #	Not read
8-S-2 11-R-4 11-R-3 11-R-1 8-S-4	Mogollon Mormon Lake Mormon Mountain(: Munds Park (s) N-Bar Lake	2 13 s) 14 7 16	115 18N 18N 18N 18N	19W*** 8E 8E 7E 17W***	7000 7350 7500 6500 8600	Frisco-Gila Verde Verde Verde Gila	
8-S-5 9-S-4 9-S-5 9-N-1 10-T-2			10S 6N wn of Mo 8N 12S	16W*** 30E verick, Ariz 6W****	8200 8500 2. 7800 8500 7300	Gila Salt-Frisco-Little Colorado Salt Little Colorado	Not read
9-S -8 7-S -1 9-R -3 8-N-1 13-P -1	State Line Taylor Creek Trout Creek Washington Pass Lo Willow Ranch	6 20 5 at. 3600 16	6S 10S 7N 5'N. Lon 21N	21W*** 10W*** 24E g.108°50'W.	8000 7850 6400 § 8600 5000	Gila–Frisco Gila Salt Little Colorado	Not read Not read
10-R -1 10 - S -1	Woods Canyon Workman Creek	15 33	11N 6N	13E 14E	7640 6900	Salt-Little Colorado Salt	Discontinued

^{*} Number indicates location of course within coordinate rectangle, thus 9-N 1 is Course *1 in coordinate rectangle 9-N.

^{**} All in Gila and Salt River Base and Meridian except where otherwise indicated.

^{***} New Mexico Principal Meridian.

^{****} Navajo Base.

^{*} On adjacent drainage.

⁽s) Soil Moisture Station installed on or in vicinity of course.

[§] Unsurveyed.

⁽p) Storage gage installed on or in vicinity of course

ARIZONA WATER SUPPLY OUTLOOK

March 15, 1956

GENERAL

The snow cover is rapidly disappearing from all watersheds. Only in the White Mountains is there any extensive area that has a good cover remaining, and even there the snow is quite "ripe" and would quickly come out as runoff if weather conditions moderated.

Cold nights have retarded snow melt and have helped to hold the pack in place. Recent dry winds have taken substantial amounts of moisture from the pack and have cut severly into the potential water supply. Soil moisture conditions remain essentially unchanged. Streams that are running are all flowing low and clear. In the higher elevations smaller streams are still **frozen** and have not started to flow. Most are still bridged across with snow.

The snow is generally well-ripened. It is "grainy" and quite heavy with water. The bottom of the snow pack is wet with free water, and in places there is a layer of ice one inch or more thick on the surface of the ground beneath the pack. The days have been very warm and have melted considerable amounts of water in the surface layers of the snow, which has resulted in increased losses to evaporation.

Irrigation withdrawals have already started from all reservoirs. Forecasts of runoff have been generally reduced, and it now appears that water shortages may begin to show up late in the season.

SNOW COVER AND WATERSHED CONDITIONS

Verde River Basin

Snow cover on this basin has completely gone except for minor areas at the higher elevations. There is no expectation of any increase in the rate of flow, but on the other hand the well primed soils should support a sustained discharge of about the amount now flowing.

Soil moisture conditions are very good at the elevations where there has been a good snow cover. In these portions of the basin there is ample moisture in the ground to provide for a good growth of spring forage. Unless warm weather is much delayed, grazing conditions should be good.

Stream flow has only been nominal. There has been no high water and many small streams have had no flow from snow melt. Verde River reservoirs now store approximately 28% of their capacity. Present storage plus runoff will amount to approximately 46% of normal water supplies on this river.

Both Mormon Lake and Lake Mary are at very low stages. There is no expectation for any but very minor snow melt runoff into these lakes. Flagstaff city water supply reserves will not be materially augumented.

Salt and Tonto River Basin

Snow cover has practically all disappeared from the Tonto drainage area, and there is no reason to expect increased discharges on this stream. On the Salt River, however, snow cover is still quite extensive but, while it contains substantial volumes of water, it is still far below normal.

The principal area of snow cover is in the Mt. Baldy area of the White Mountains. Snow depths here run up to 30 inches, with much greater depths in the drifts. The snow is ripe and very heavy. Densities up to 50% are reported. In some areas the snow is so full of water that it has frozen into a solid mass. Ice is present in the upper portion of the pack at most locations. Frozen ground or ice layers at the bottom of the pack has impeded drainage and restricted runoff. Warm weather has kept the surface soft during the daytime and the pack is losing water, mostly to evaporation which has been particularly active due to the recent dry winds. The snow is very granular and free water is readily visible between the grains. This condition extends throughout the depth of the pack.

There is very little runoff taking place in this area. Streams are frozen and covered over with snow. These conditions have all remained static for most of February and developments of the situation depend entirely on the weather.



The right combination of weather conditions at this time could result in very rapid and almost complete runoff of the remaining snow pack. Very high rates of flow could develop and the total runoff could very greatly exceed present forecasts. On the other hand, much prolongation of present weather conditions would result in the loss of large amounts of water to evaporation and substantially less total runoff than is now forecast. Earlier forecasts have been revised slightly downward in the expectation that approximately normal weather conditions will prevail in the mountains.

Recent stream flow has been at a rate of about one third of normal. Some increase in discharge can be expected, but there is insufficient snow remaining in the mountains to produce anything approximating normal volumes of runoff.

Salt River reservoir storage at this time amounts to about 80% of normal. Water now in storage plus runoff will amount to approximately 70% of normal water supply on this river.

Little Colorado River Basin

This stream heads in the same area as does the Salt River and the upper watershed conditions are the same for both streams.

In relation to area, however, snow cover is heavier on the Little Colorado than on the other Arizona drainages. Overall water supply prospects are also somewhat better on the upper reaches of this river than in other areas of the state.

The total amount of water in storage at this time is approximately equal to the 1938-1952 average and total prospective water supplies are approximately 80% of average for that period. This does not mean that ample water will be available in all areas, as there is considerable variation in conditions over the drainage basin. At the present time it appears that Show Low Lake will not gain appreciable amounts of water. The Greer lakes should complete filling and Lyman reservoir should increase to approximately 40% of capacity. Tributaries heading in the Mogollon Rim area and to the west should be better than for the last two years but well below normal.

Soil moisture conditions are excellent throughout the White Fountain and Rim areas, and should result in sustained low flows in the streams. Forage production should be much better this spring than last year and good grazing conditions are in prospect. There should be no shortage of stock water in the mountain areas.

The sustained flows will result in conditions favorable for fishing and recreational use of the area. However, there is no indication of substantial increases in the amount of inflow to Crescent or Big Lakes.



Gila and San Francisco River Basin

Snow cover on this basin has been rapidly disappearing. There is little snow left except in the higher elevations, the Wilderness area and on the headwaters. Even in these locations, the snow is generally quite spotty and the cover is diminishing rapidly. High density snow previously reported has completely melted.

Soil moisture conditions are much better than a year ago. Forage production should be correspondingly better. Low, sustained stream flow can be expected, but there is insufficient snow cover left to result in any high peak flows.

Water supply forecasts on both the Gila at Virden and the San Francisco at Clifton have been reduced slightly. However, the amount of runoff that has been forecast has been so low that the changes are of
little significance in the overall water supply picture. San Carlos
reservoir now stores approximately 35% of the 1938-1952 average
contents for this date. Runoff into the reservoir is expected to
amount to only 28% of the 1938-1952 average, less upstream depletions.

Other Basins

Other Arizona basins have been fully reported in previous bulletins. There have been no changes in the conditions, and there is no further information to be added to that already published.



STREAM FLOW FORECASTS - MARCH 15, 1956

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature during the forecast period will be near average. Appreciable deviations from normal of temperature and/or precipitation during the forecast period will correspondingly modify these forecasts.

		SEASONAL STREAM FLOW IN THOUSANDS OF AC FORECAST PERIOD MARCH - MAY, INCLUS				
BASIN, STREAM AND STATION	Forecast Runoff 1956	Percent 15-Year Average	Me as 1955	sured Rur 1954	noff 1953	15-Year Average 1938-52
Salt River at Intake	143.	49	36.5	214.1	128,3	290.4
Tonto River above Roosevelt	10.	29	2,6	29.5	24.8	34.0
Verde River above Horseshoe	36.	20	41.5	163,9	39.7	179.8
Gila River at Virden	15.	32	6.7	20.7	22.3	46.5
Frisco River at Clifton	10.	24	6.6	27.9	14.3	42.2
Little Colorado River above Lyman Dam 1/2/	4.	44	0.3	1.7	2.1	9.1

^{1/} Average is for less than 15 years in the 1938-52 period.

Forecast period for Little Colorado River above Lyman Dam is for Feb.-June, inclusive.



STATUS OF RESERVOIR STORAGE - MARCH 15, 1956

Manage and American Street, St	den de partir de la companya della companya della companya de la companya della c		USABLE	STORAGE -	1000 ACRE	FEET
BASIN and STREAM	RESERVO IR	USABLE CAPACITY 1000s AF	1956	1955	1954	15-Year Average 1938-52
Agua Fria	Lake Pleasant 1/	163,8	27.6	23.1	32.0	31.2
Colorado	Lake Havasu 1/	688.0	602.0	607.5	600.2	573.9
Colorado	Lake Mohave 1/	1,810.0	1,670.0	1,736.5	1,764.0	1,139.2
Colorado	Lake Mead	27,207.0	10,913.0	11,700.0	15,888.0	18,667.0
Gila	San Carlos	1,205.0	68.4	31.0	0.3	196.8
Verde	Bartlett 1/	180.0	87.0	73.2	52 , 0	71.1
Verde	Horseshoe 1/	143.0	2.4	2.0	3.0	23.8
Salt	Roosevelt	1,381.6	244.2	434.2	549.0	471.8
Salt	Apache	245.1	233.3	243.4	243.0	190.6
Salt	Canyon	57.8	51.4	54.8	55.0	41.1
Salt	Saguaro	69.8	61.0	59.9	57.0	36.5
Little Colorado	Lyman <u>1</u> /	30.6	7.4	2.0	0.8	8.7
Little Colorado	Show Low Lake 1/	5.1	0.5	0.2	0.1	an or

^{1/} Average is for less than 15 years of record in the 1938-52 period.

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SUMMARY OF MARCH 15 SNOW SURVEYS AND COMPARISON OF DATA WITH THAT OF PREVIOUS YEARS BY WATERSHED

No. of Snow Courses Depth in 1956		Sn		er Con Inches	Snow Density 1956	1956 Water Content in Percent of			
WATERSHEDS	Average	Inches	1956	1955	1954		Percent		Average
Gila River	6	1.3	0,5	0.0	0.0	1.7	38	diel god	29
Salt River	12	6.0	2.1	0.9	0.7	4.8	35	233	44
Verde River	8	0.8	0.3	1.1	0.1	3.8	37	27	8
Williams River	3	0.0	0.0	0.0	0.0	0.7			wa 198
Lower Colorado River	4	6.5	1.8	3.3	1.2	5.6	28	55	32
Little Colorado River	10	5.1	1.7	1.5	0.8	4.4	33	113	39

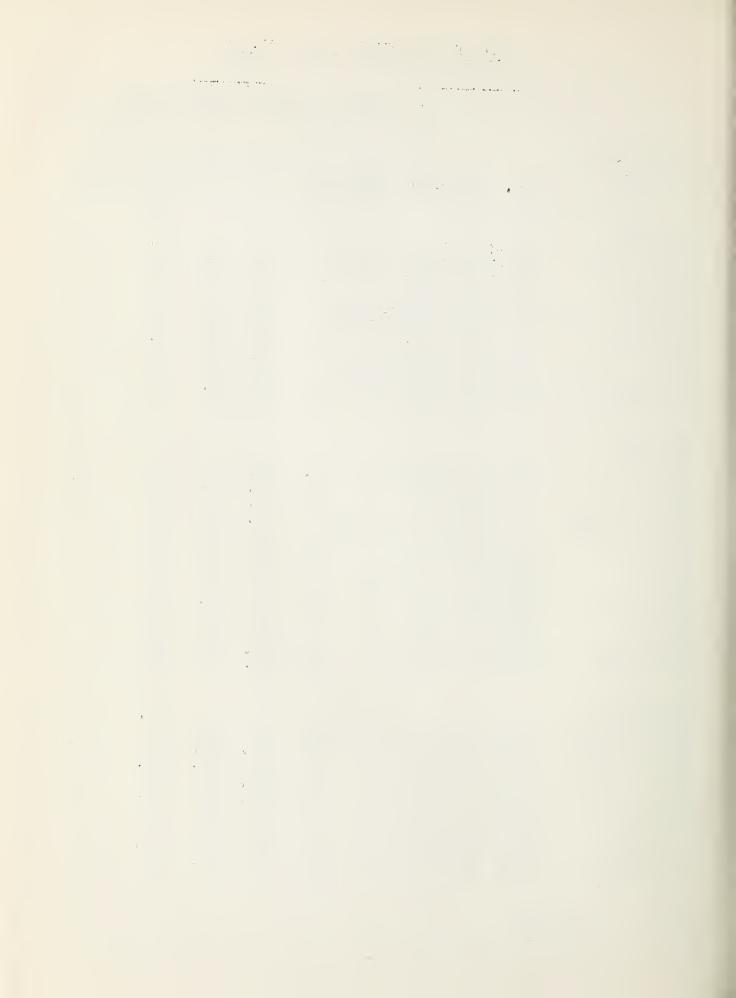
Note: Figures given are snow course averages and do not necessarily represent distribution of snow over watershed.



DRAINAGE BASIN and SNOW COURSE GILA RIVER Nutrioso Bear Wallow 3/ Frisco Divide State Line Coronado Trail 3/ Beaver Head Taylor Creek Inman Rose Canyon 3/	No •	Elev.	Sur- D	1956	Water	***	PA	ST RECORD	Pre-
and SNOW COURSE GILA RIVER Nutrioso Bear Wallow 3/ Frisco Divide State Line Coronado Trail 3/ Beaver Head Taylor Creek Inman	No •	Elev.	of S Sur- D			***			Dree
and SNOW COURSE GILA RIVER Nutrioso Bear Wallow 3/ Frisco Divide State Line Coronado Trail 3/ Beaver Head Taylor Creek Inman	No •	Elev.	Sur- D		C~~			. (-)	
GILA RIVER Nutrioso Bear Wallow 3/ Frisco Divide State Line Coronado Trail 3/ Beaver Head Taylor Creek Inman	No •	Elev.			Con-	Water	Conte	nt (In.) 1938-52	vious Yrs. of
Nutrioso Bear Wallow 3/ Frisco Divide State Line Coronado Trail 3/ Beaver Head Taylor Creek Inman			Agy ((In.)	1955	1954		
Nutrioso Bear Wallow 3/ Frisco Divide State Line Coronado Trail 3/ Beaver Head Taylor Creek Inman								2/	- 1
Bear Wallow 3/ Frisco Divide State Line Coronado Trail 3/ Beaver Head Taylor Creek Inman			m /m .	_					
Frisco Divide State Line Coronado Trail 3/ Beaver Head Taylor Creek Inman	9-5-4	8500	3/14	1	0.5	0.1	0.0	1.9	16
State Line Coronado Trail 3/ Beaver Head Taylor Creek Inman	10-T-1	8100	Report		•	0.7	0.0	2.4	8
Coronado Trail 3/ Beaver Head Taylor Creek Inman	8 - S-1	8000	3/14 3/14	4	1.3	0.0	0,0	1.5	16
Beaver Head Taylor Creek Inman	9-5-8	8000		1	0.4	0.0	0.0	2.2	16
Taylor Creek Inman		8000	Report 3/14			0.0	0.0	3.5	16
Inman	9-5-6	8000	3/14 $3/14$	2	0.5	0.0	0,0	3.1	16
	7-S-1 7-S-2	7850 7800	3/14	0	0.0	0.0	0.0	0.4	14
rose canyon of	10-T-2	7300	Report			0.0	0.0	0.8 1.1	10 8
Mogollon 3/	8-S-2	7000	3/15	0	0.0	0.0	0,0		3
Black Canyon 3/	7-S-3	6790	3/14	0	0.0	0.0	0.0	•	3
_	7-5-0	0130	0/11	Ü	0.0	0.0	0.0	_	J
SALT RIVER	0.7.5	07.00	2/20	0.4	m 0			0.7	•
Ft. Apache 1	9-R-5	9160	, ,	24	7.2	4.0	4.5	8.3	6
Baldy 1/	9 - S-1	9125		14	4.9			7.5	6
Maverick Fork	9-S-2 9-S-4	9020 8500	· .	23	8.9	4.9		12.5	6
Nutrioso Coronado Trail 3/	9-S-7	8000		1	0.5	0.1	0.0	1.9 3.5	16
Beaver Head	9-S-6	8000	Report 3/14	2		0.0	0.0	3.1	16
Pacheta	9-S-5	7800	3/14		0.5	0.0		4.8	16
,		7600		0	0.0	0.0 T	0.0	2.8	5 6
Gentry 3/ Heber	10-R-5 10-R-4	7600	No Sur 3/13	2 2	0.7	0.0	0.0	3.1	6
	10-R-4 10-R-3	7500	3/13		1.2	T.	0.0	3.9	6
Canyon Creek MoNary	9-R-2	7200	3/15	T	T	0.0	0.0	1.5	16
Milk Ranch	9-R-2 9-R-1	7000	3/15	0	0.0	0.0	0.0	0.8	15
Work man Creek	10-S-1	6900	3/13	2	0.9	0.0	0.0	9.8	4
Forest Dale	10-3-1 10-R-6			۵	0.0	0.0		0.5	16
	10-11-0	0400	3/13	U	0.0	0.0	0.0	0.0	10
VERDE RIVER									
Happy Jack 3/	11-R-5	7630			_		0.0	6.0	5
Gaddes Canyon 3/		7600	3/14	2		3.1			2
Mormon Mountain,		7500	3/14			4.6	0,6		6
Mormon Lake 1/	11-R-4	7350	3/14	T	T	2.4	0.3		9
Fort Valley 1/		7350	3/14	0	0.0	0.6	0.0	3.3	9
Mingus Mbuntain		7100	3/14	0	0.0	0.0	0.0	1.1	9
Chalender	12-P-1	7100	3/13	T	T	2.4	0.0	4.1	9
Casner Park	11-R-2	6930	3/13	0	0.0	0.0	0.0		6 6
Munds Park	11-R-1	6500	3/13	0	0.0	Ţ	0.0		10
Iron Springs 1/ Camp Wood 3/	12-R-2 12-R-1	6200 5 7 00	3/14 3/14	0	0.0	0.0	0.0	1.2 0.7	10
oamp wood 3	TC-V-T	3700	O/ T4	U	0.0	U a U	0 . 0	0.7	TO

On adjacent drainage.
All averages are for less than 15 years of record in the 1938-52 period.

Not included in watershed average.



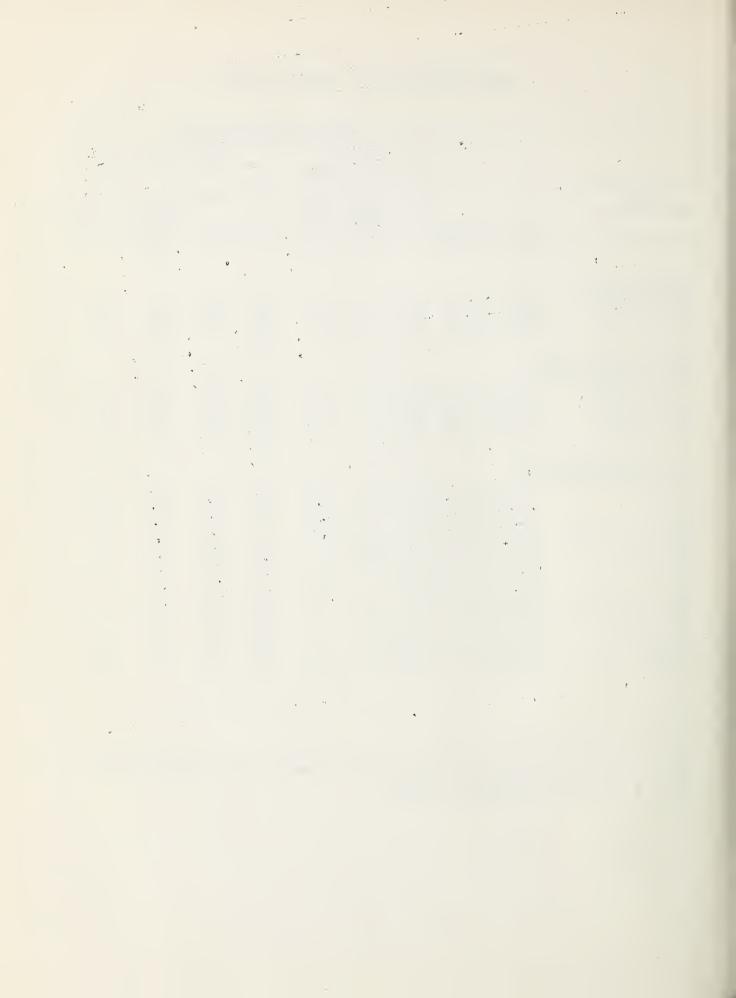
ARIZONA SNOW SURVEYS - MARCH 15, 1956

Material and Control of the Angelog State of the State of				S	NDW COV	ER MEA	SUREME	INTS	
			-	1956				RECORD	
DRAINAGE BASIN and SNOW COURSE	No •	Elev.		Snow Depth (In.)		Water	Conte	nt (In.) 1938-52 Average	Pre- vious Yrs. of Record
								2/	
WILLIAMS RIVER									
Iron Springs,	12-R-2		3/14	0	0.0	0.0	0.0	1,2	10
Camp Wood 1/ Willow Ranch	12-R-1 13-P-1	5700 5000	3/14 3/14	0	0.0	0.0	0,0	0.7	10 10
WITIOW Kellon	TONLAT	5000	0/14	O	0.0	0.0	~	0.1	10
LOWER COLORADO RI	VER								
Bright Angel	12-N-1	8400	3/15	25	7.1	8.2	4.6	12.5	9
Grand Canyon Fort Valley	11-P-1 11-P-2	7500 7350	3/15 $3/14$		0.3	1.9	0.0	2.4 3.3	9
Chalender 1/	12-P-1	7100	3/13		T	0.6 2.4	0.0	4.1	9 9
LITTLE COLORADO R	IVER		,	·					
Ft. Apache	9-R-5	9160	3/12	24	7.2	4.0	4.5	8.3	6
Baldy	9-S-1	9125	3/12	14	4.9	3.2	2.3	7.5	6
Nutrioso	9-S-4		3/14		0.5	0.1	0.0	1.9	16
Happy Jack 1/3/	11-R-5	7630		rt Del	ayod	~	0.0	6.0	5
Gentry 3/ Heber	10-R-5	7600		urvey	0 17	0.0	0.0	2.8	6
Canyon Creek	10-R-4 10-R-3	7600 7500	3/13 3/13		0.7	0.0 T	0.0	3.1 3.9	6 6
Mormon Mountain	10-R-3	7500	3/13		1.2 2.4	4.6	0.6	6.3	6
Mormon Lake	11-R-4	7350	3/14		T T	2.4	0.3	8.0	9
Fort Valley	11-P-2	7350	3/14		0.0	0.6	0.0	3.3	9
MoNary	9-R-2	7200	3/15	T	T	0.0	0.0	1.5	16
Forest Dale	10-R-6	6430	3/15	0	0.0	0.0	0.0	0.5	16

^{1/} On adjacent drainage.

^{2/} All averages are for less than 15 years of record in the 1938-52 period.

^{3/} Not included in watershed average.



ARIZONA SNOW SURVEYS - DELAYED REFORTS RECEIVED SINCE LAST BULLETIN (March 1, 1956)

DRAINAGE BASIN			WOMS	COVER MEASURE	MENTS - 1956
and SNOW COURSE	No •	Elev.	Date of Survey	Snow Depth (Inches)	Water Content (Inches)
had made an and the bad appropriate				(-1.01.02)	(
GILA RIVER					
Black Canyon	7-S-3	6790	2/29	0.0	0.0
ILLIA'S RIVER					
Willow Ranch	13-P-1	5000	2/29	0.0	0.0



LIST OF SNOW SURVEYORS

SNOW COURSE	SURVEYOR
Baldy	SCS and SRVWU
Bear Wallow	
Beaver Head	· · · · · · · · · · · · · · · · · · ·
Black Canyon	Robert M. White
Bright Angel	Hillis and Hillis
Camp Wood	
Canyon Creek	SCS and SRVWU
Casner Park	SCS and SRVWU
Chalender	Oleson and Gossard
Coronado Trail	McAdems
Forest Dale	Robinson, Karty and Bread
Ft. Apache	· · · · · · · · · · · · · · · · · · ·
Fort Valley	Rocky Mt. F. & R. Exp. Station
Frisco Divide	Weissenborn
Gaddes Canyon	Richard Enz
Gentry	SCS and SRVWU
Grand Canyon	Lynch
Happy Jack	Emil Ryberg and Vance Keys
Heber	SCS and SRVWU
Inman	C. H. McCauley
Iron Springs	Ernest Saxby
McNary	Robinson, Karty and Bread
Maverick Fork	SCS and SRVWU
Milk Ranch	Robinson, Karty and Bread
Mingus Mountain	Richard Enz
Mogollon	J. R. Wray
Mormon Lake	
Mormon Mountain	SCS and SRVWU
Munds Park	SCS and SRVWU
Nutrioso	McAd ams
Pacheta	Foch Phillips
Rose Canyon	J. R. Brinkley
State Line	Weissenborn
Taylor Creek	C. H. McCauley
Willow Ranch	Tiny Miller and LeRoy Tingstrom
Workman Creek	Rocky Mt. F. & R. Exp. Station



The following organizations cooperate in the Arizona snow survey work:

FEDERAL

Department of Agriculture

Soil Conservation Service

Forest Service
Apache Forest
Coconino Forest
Coronado Forest
Gila Forest
Kaibab Forest
Prescott Forest
Rocky Mountain Forest and Range Experiment Station

Department of Commerce
Weather Bureau
Arizona Section

Department of Interior

Bureau of Reclamation Region III

Geological Survey
Arizona District

Bureau of Indian Affairs Fort Apache Reservation

National Park Service Grand Canyon National Park

Gila Water Commissioner, Safford, Arizona

IRRIGATION PROJECTS

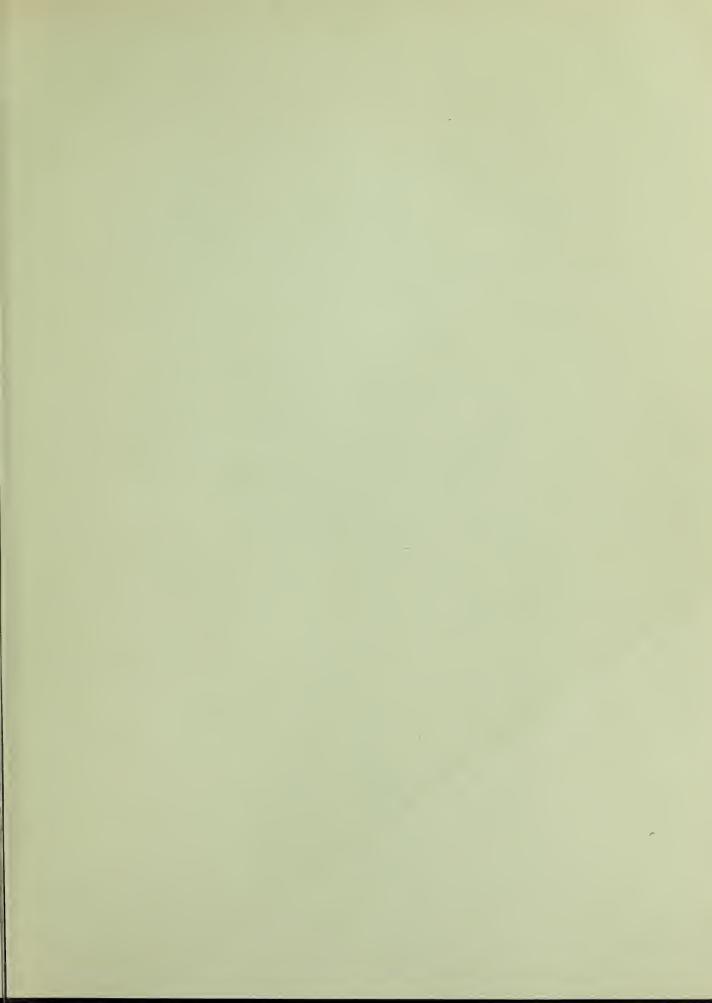
Salt River Valley Water Users! Association Phoenix, Arizona

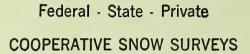
San Carlos Irrigation and Drainage District Coolidge, Arizona

SOUTHWEST LUIBER MILLS, INC., McNary, Arizona

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

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Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

"WATER IS THE WEST'S GREATEST RESOURCE"